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DERWENT-ACC-NO: 1998-352316

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TITLE: Mouse assembly for portable computer, wordprocessor - consists of trackball, left button, right button and electronic circuit enclosed in housing

PATENT-ASSIGNEE: NEC CORP (NIDE)

PRIORITY-DATA: 1996JP-0307272 (November 1, 1996)

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PATENT-FAMILY:

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INT-CL (IPC): G06 F 3/033

ABSTRACTED-PUB-NO: JP 10133813A

BASIC-ABSTRACT:

The device has a holding unit (3) which adjoins a housing (2), and contracts freely. The upper surface of the holding is formed by two plate covers (31,32). The housing and the two covers are coupled by a hinge member (38).

The base and the sides of the holding unit are covered by the base cover. The hinge member has multiple joints. The two plate covers are piled up on the housing respectively, thus making the holding part contract.

ADVANTAGE - Avoids reduction in operability. Improves portability.

ABSTRACTED-PUB-NO: JP 10133813A

EQUIVALENT-ABSTRACTS:

CHOSEN-DRAWING: Dwg.2/8

DERWENT-CLASS: T01 T04

EPI-CODES: T01-C02B1A; T01-C02B1G; T04-F02B1; T04-F02B5;

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(71)Applicant : NEC CORP

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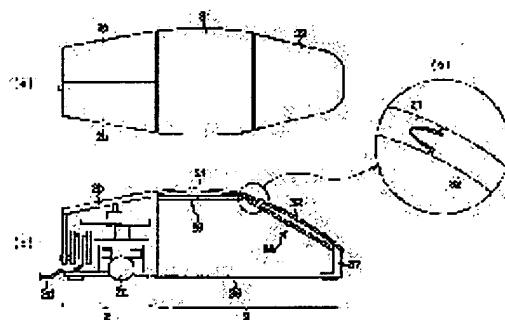
(72)Inventor : YOSHINAGA KOJI

(54) MOUSE DEVICE

(57)Abstract:

PROBLEM TO BE SOLVED: To provide a mouse device having high portability without deteriorating its operability.

SOLUTION: The mouse device is composed of a track ball 2a, left button 2b, right button 2c, housing 2 which contains mouse function parts such as an electronic circuit or the like, and a holding part 3 which is adjacent to the housing 2 and formed freely foldable (contractable). The upper surface of the holding part 3 is formed by covers 31 and 32 being board materials, and the housing 2 and the covers 31 and 32 are combined by a hinge member 38 respectively. The bottom and side faces of the holding part 3 are covered with a bottom cover 39 made of gum and a side cover respectively. By folding the hinge member 38 and wrapping over the covers 31 and 32 on the housing 2 respectively, the holding part 3 is contracted and the mouse device is made small.



LEGAL STATUS

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rejection]

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CLAIMS

[Claim(s)]

[Claim 1] Mouse equipment characterized by having housing which holds mouse functional parts, such as a trackball, and the grasping section which adjoined said housing and was constituted possible [contraction].

[Claim 2] Mouse equipment characterized by having housing which holds mouse functional parts, such as a trackball, and the grasping section which adjoined said housing and was constituted possible [folding].

[Claim 3] Said grasping section is mouse equipment according to claim 1 or 2 which has two or more plates combined using hinge region material.

[Claim 4] Said grasping section is mouse equipment according to claim 3 which has the flexible member connected to said plate on a base or a side face.

[Claim 5] Mouse equipment given in claim 1 which prepared the cable reel style in said housing thru/or any 1 term of 4.

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DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the suitable mouse equipment especially for a pocket mold computer apparatus about mouse equipment.

[0002]

[Description of the Prior Art] While the computer and word processor of a pocket mold have spread, that to which the mouse equipment as an input unit also fitted the cellular phone is demanded. What enabled carrying of mouse equipment and use is known, without spoiling portability as mouse equipment for the conventional pocket mold computers by building in or attaching mouse equipment in the body of a pocket mold personal computer etc. (refer to JP,4-152417,A).

[0003]

[Problem(s) to be Solved by the Invention] Conventionally [above-mentioned], I hear that the magnitude of a mouse body becomes small, and the 1st trouble of equipment has it, in order to build in or attach a mouse in the body of a pocket mold personal computer. Although the magnitude of the mouse optimal for an operator is the magnitude of extent which gets used to a hand, if magnitude of a mouse is made smaller than it, although portability becomes good, the problem that operability worsens will produce it.

[0004] The 2nd trouble is assuming wireless about the mouse cable in a Prior art. Since wireless does not have a cable, although portability is excellent, it is inaccurate, and operability worsens.

[0005] Then, the purpose of this invention aims at raising portability in mouse equipment, without spoiling the operability.

[0006]

[Means for Solving the Problem] In order to solve the above-mentioned technical problem, in this invention, housing which holds mouse functional parts, such as a trackball, and the grasping section which adjoined this housing and was constituted possible [contraction] or possible [folding] constituted mouse equipment.

[0007] Two or more plates combined for example, using hinge region material can constitute the grasping section, and it can also constitute the base or side face of the grasping section by the flexible member further.

[0008] If it is made above, since the mouse itself is the same, at the time of actuation, a usual mouse and a usual magnitude gestalt do not have operability inferior in it. Moreover, at the time of carrying, magnitude becomes small far from the time of actuation by shrinking the grasping section (about [for example,] 1/3). Furthermore, if you may enable it to contain a cable inside a body and it is done so, portability will improve further.

[0009]

[Embodiment of the Invention] Next, the gestalt of operation of this invention is explained to a detail with reference to a drawing. The top view at the time of mouse use and (b) fold up the perspective view and drawing 2 (a) which show the appearance of mouse equipment 1 according [drawing 1] to this

invention, a partial enlarged drawing and drawing 3 (a) fold up the sectional view at the time of mouse use, and (c), and the top view at the time (at the time of contraction) and drawing 3 (b) fold up, and are a sectional view at the time.

[0010] Mouse equipment 1 consists of housing 2 which holds mouse functional parts (components for making it function as a mouse), such as a trackball, a switch carbon button, and an electronic circuitry, and the grasping section 3 which adjoined housing 2 and was constituted free [folding]. In housing 2, cable 2d for connection with trackball 2a [which is a mouse functional part], left carbon button 2b, and right carbon button 2c, and the exterior, an electronic circuitry, etc. are attached.

[0011] The grasping section 3 is a part grasped by the palm at the time of mouse use. The top face of the grasping section 3 is formed with the coverings 31 and 32 which consist of a plate, a left lateral is formed of side covers 33 and 34, a right lateral is formed of side covers 35 and 36, a back end side is formed with covering 37, and the mouse base is formed with the base covering 39. The inside of the grasping section 3 is a cavity. It consists of a plate, and it is a flexible member (elastic member) and the hard thing of side covers 33 and 35 and covering 37 is [side covers 34 and 36 and the base covering 39 are rich in elasticity like rubber as the quality of the material, and] desirable [the covering]. Moreover, the light and hard thing of the plate of coverings 31, 32, 33, 35, and 37 is desirable like plastics. The base covering 39 is attached between housing 2 and covering 37, and side covers 34 and 36 are attached, respectively between a side cover 33 and covering 37 and between a side cover 35 and covering 37.

[0012] Covering 31 and covering 32 are combined by the hinge region material 38 free [folding]. the hinge region material 38 is shown in drawing 4 (a) -- as -- Plates 38a and 38b -- receiving part 38c formed in each edge is doubled by turns, it combines with the through tube formed in receiving part 38c like drawing 4 (b) through 38d of shafts, and rotation is made free a core [38d of shafts] like drawing 4 (c). Similarly, as housing 2 and the hinge region material 38 are also shown in drawing 4 (d), it is combined free [rotation].

[0013] As shown in A of drawing 1, the contact parts of housing 2 and covering 31 form concave and a convex configuration in each, and fitting of it is carried out and they are stopping it. Moreover, housing 2 and a side cover 33 are stopped as shown in B of drawing 1. That is, pin 2f is prepared in a housing 2 side, on the other hand, check plate 33b opened and closed focusing on hinge 33a is attached in a side-cover 33 side, and a side cover 33 is stopped in housing 2 by stopping check plate 33b to pin 2f. Furthermore, as covering 31 and covering 32 are shown in drawing 2 (c), irregularity is formed in each edge and fitting of the edge is carried out by the irregularity.

[0014] Next, the actuation which shrinks the grasping section 3 is explained using drawing 5 R> 5. As shown in (b), the hinge region of the hinge region material 38 is pushed up upwards, drawing 5 (a) removes the left end of covering 31 from housing 2, when the condition at the time of mouse use is shown and it shrinks the grasping section from this condition, as shown in (c), next, the left end of covering 31 is raised for a while upwards, it gets down and the hinge-region material 38 is bent, and makes covering 31 slide horizontally and repeats it to up to housing 2.

[0015] Drawing 6 is drawing explaining receipt actuation of covering 32. When the condition at the time of mouse use is shown and it shrinks the grasping section from this condition, as shown in (b), the hinge region of the hinge-region material 38 is pushed up upwards, drawing 6 (a) removes the left end of covering 32 from covering 31, as shown in (c), it raises a little left end of covering 32 upwards, gets down and bends the hinge-region material 38, makes covering 32 slide, and piles up to up to covering 31 next.

[0016] Drawing 7 is drawing explaining receipt actuation of a side cover 33. When the condition at the time of mouse use is shown and it shrinks the grasping section from this condition, drawing 7 (a) As are shown in (b), and the left end of push and a side cover 33 is separated from housing 2 outside (lower part of drawing) and the hinge region of the hinge region material 38 is shown in (c) below It gets down from a little left end of a side cover 33 outside (lower part of drawing), push and the hinge region material 38 are bent, and a side cover 33 is piled up to up to housing 2.

[0017] It functions as contracting, and the base covering 39 and side covers 34 and 36 pulling each covering, and making them stick it to housing 2 with expansion of coverings 31, 35, 33, 35, and 37, as

shown in drawing 3 at the time of contraction of elongation and the grasping section as shown in drawing 1 and 2 at the time of mouse use.

[0018] Furthermore at the time of contraction of the grasping section, cable 2d is rolled round. The device is shown in drawing 8. In housing 2, the reel 4 which rolls round cable 2d was attached in the shaft 5 pivotable, the gear 6 fixed to the reel 4, and the gear 6 meshes with the gear 7. the spiral spring which energizes cable 2d for a gear 7 in the winding direction in a gear 7 -- the spring 8 is attached. A through tube is formed in side plate 2e of housing, hole 4a is formed in the side face of a reel 4, and rotation of a reel 4 is made to control by inserting a lock pin 9 in hole 4a through said through tube.

[0019] Now, a lock pin 9 is pulled out at the time of mouse use, and cable 2d is pulled out. then, rotation of a reel 4 -- a gear 7 -- rotating -- spiral spring -- the force of making a spring 8 rotating a reel 4 in the cable winding direction is conserved. If a cable is pulled out to suitable die length, a lock pin 9 will be inserted in hole 4a of a reel, and the inversion of a reel 4 is controlled. if a lock pin 9 is pulled out -- spiral spring -- a reel 4 rotates and cable 2d is rolled round by the force of a spring 8.

[0020] Since it can be made the optimal magnitude and a configuration in order that the grasping section may use a mouse at the time of mouse use if it is made above, the operability of a mouse is not spoiled. Moreover, since each covering is repeated on housing 2 top face and a side face and the grasping section is shrunk at the time of carrying, the magnitude becomes about [at the time of use] 1/3, and, as for the case of the above-mentioned example, its portability also improves. By forming the side face or base of the grasping section by flexible members, such as rubber, contraction can constitute the high and lightweight grasping section. By rolling round a cable, portability becomes still better.

[0021] Although the grasping section is formed by two or more plates and said plate was put on the top face of housing, not only it but a plate is folded up and you may make it attach to the top face, rear face, or side face of housing in the above-mentioned example. Furthermore, the grasping section may be constituted using the block in which desorption is possible, or the grasping section may be constituted so that the interior may swell with air etc. by member like a balloon in a cavity. When the grasping section is the usual magnitude and a mouse is not used in short at the time of mouse use, what is necessary is just the structure which the grasping section contracts. Or what is necessary is just the structure which the grasping section can fold up.

[0022]

[Effect of the Invention] Portability can be raised without spoiling operability, since according to this invention it is the same as the magnitude of an ordinary mouse at the time of mouse use and it can be made small at the time of carrying.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the external view of an example of the mouse equipment by this invention.

[Drawing 2] (a) is [a sectional view and (c of the top view of mouse equipment and (b))] partial enlarged drawings.

[Drawing 3] (a) is a top view at the time of contraction of mouse equipment, and (b) is a sectional view.

[Drawing 4] It is drawing showing the structure and attachment structure of hinge region material.

[Drawing 5] It is drawing explaining receipt actuation of covering.

[Drawing 6] It is drawing explaining receipt actuation of another covering.

[Drawing 7] It is drawing explaining receipt actuation of a side cover.

[Drawing 8] It is drawing explaining a cable reel style.

[Description of Notations]

1 Mouse Equipment

2 Housing

3 Grasping Section

31 32 Covering

38 Hinge Region Material

[Translation done.]

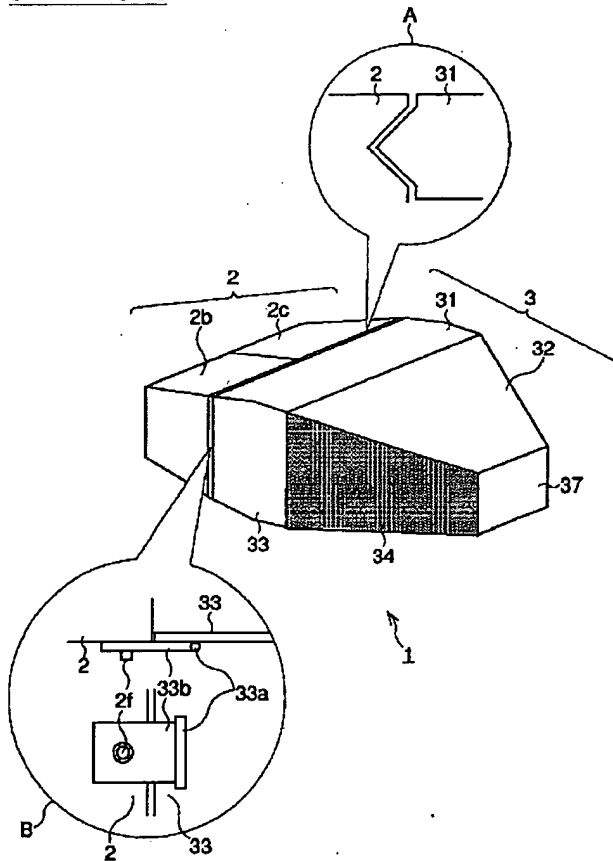
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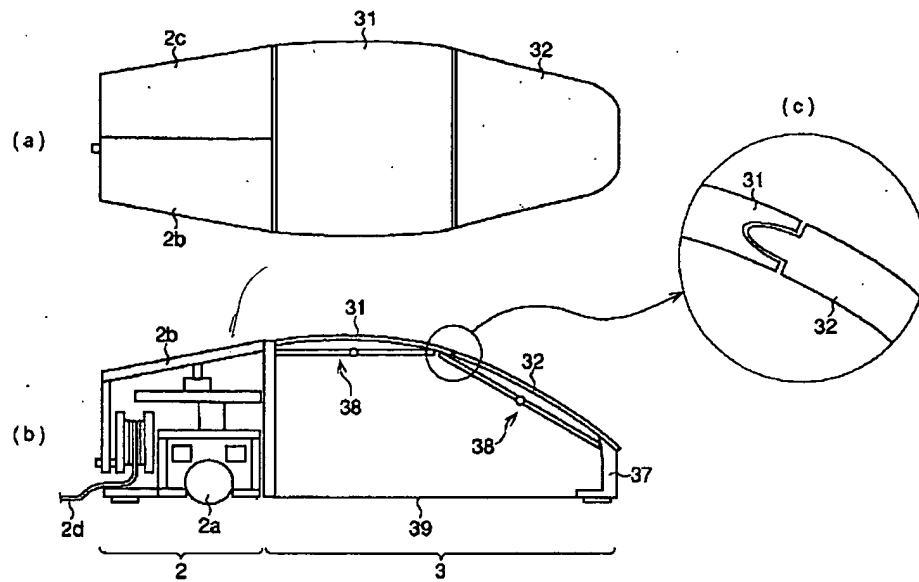
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DRAWINGS

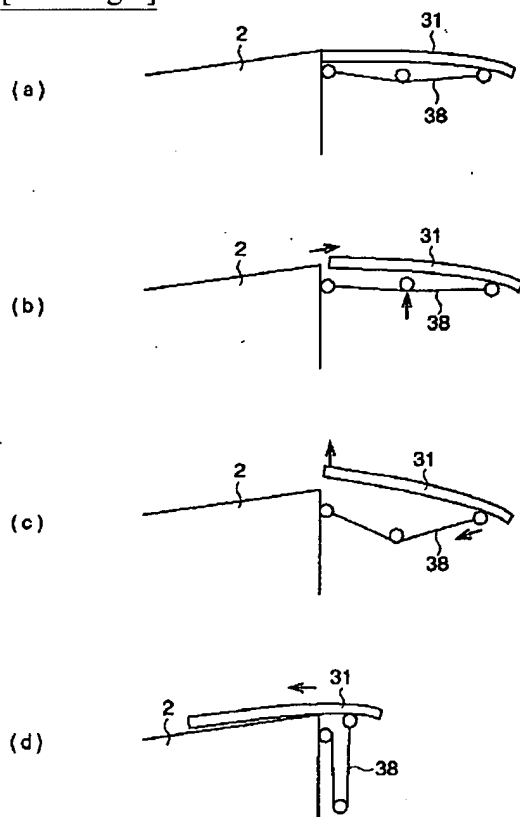
[Drawing 1]



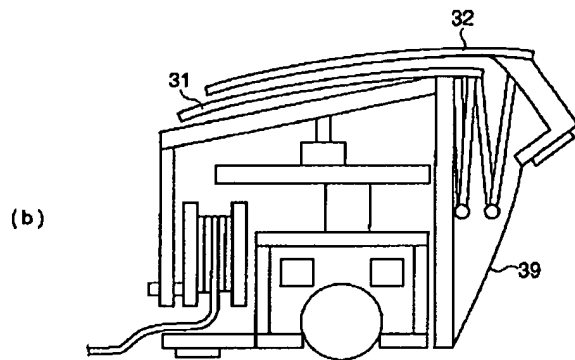
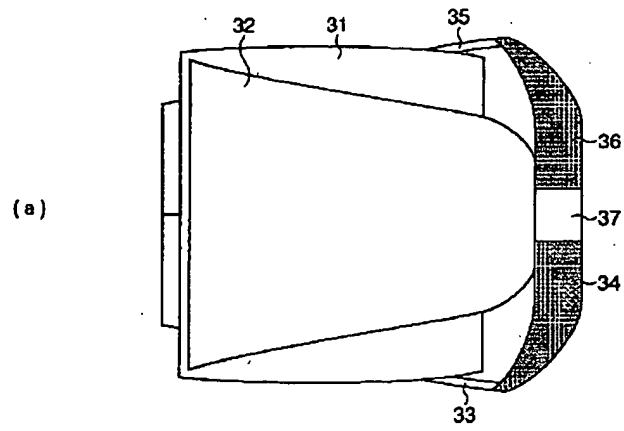
[Drawing 2]



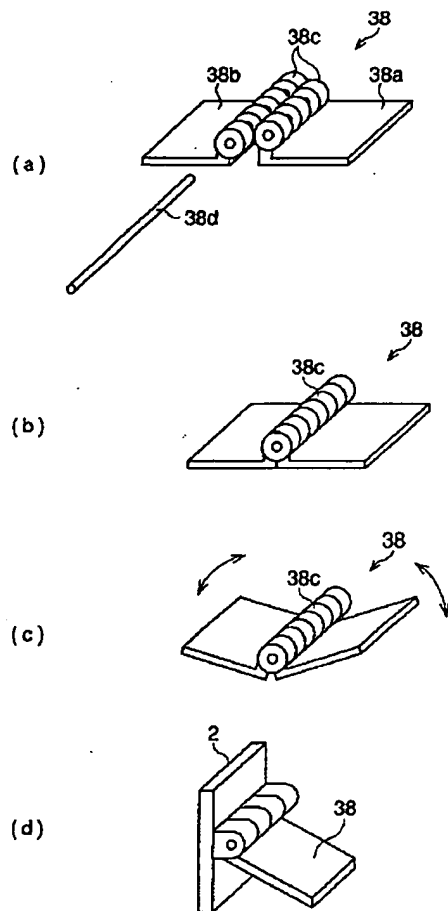
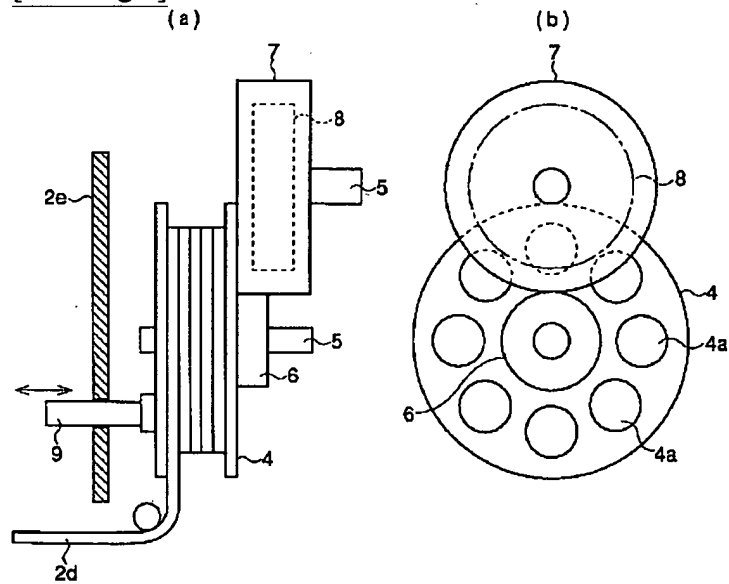
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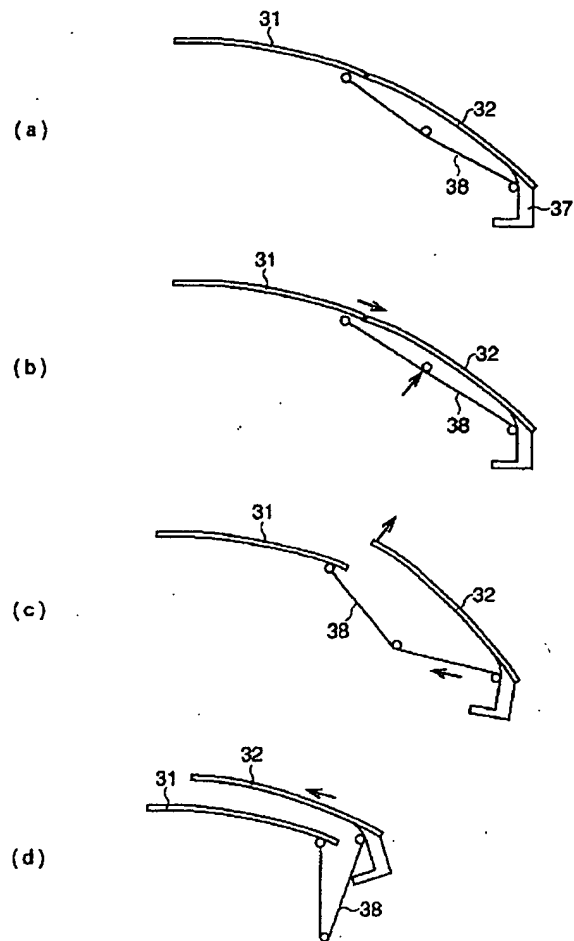


[Drawing 3]

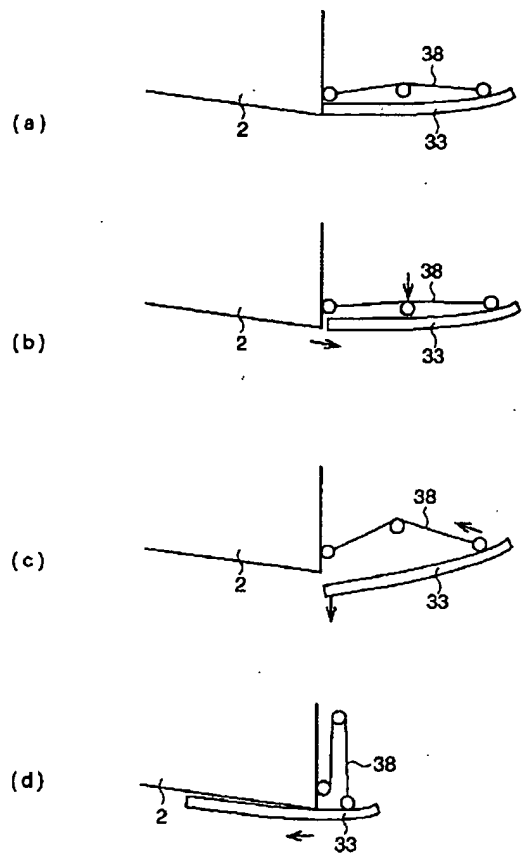


[Drawing 4]

[Drawing 8][Drawing 6]



[Drawing 7]



[Translation done.]